REMARKS

This Preliminary Amendment cancels without prejudice original claims 1 to 12 in the underlying PCT Application No. PCT/DE2004/001187. This Preliminary Amendment adds new claims 13 to 24. The new claims are believed to conform to the U.S. Patent and Trademark Office rules and do not add new matter to the application.

In accordance with 37 C.F.R. § 1.121(b)(3), the Substitute Specification (including the Abstract, but without the claims) contains no new matter. The amendments reflected in the Substitute Specification (including Abstract) are to conform the Specification and Abstract to U.S. Patent and Trademark Office rules or to correct informalities. As required by 37 C.F.R. § 1.121(b)(3)(iii) and § 1.125(b)(2), a Marked Up Version Of The Substitute Specification comparing the Specification of record and the above-submitted Substitute Specification also accompanies this Preliminary Amendment. In the Marked Up Version, double-underlining indicates added text and strikeouts indicate deleted text. Approval and entry of the Substitute Specification (including Abstract) is respectfully requested.

The underlying PCT Application No. PCT/DE2004/001187 includes an International Search Report, dated October 25, 2004. The Search Report includes a list of documents that were found in the underlying PCT Application. An English translation of the Search Report accompanies this Preliminary Amendment.

Applicants assert that the subject matter of the present application is new, non-obvious, and useful. Prompt consideration and allowance of the application are requested.

Respectfully submitted,

Dated: Dec. 27, 2005

By: R. L. Mayer Reg. No. 47084
Richard L. Mayer (Reg. No. 22,490)

KENYON & KENYON
One Broadway
New York, New York 10004
(212) 425-7200 (telephone)
(212) 425-5288 (facsimile)

CUSTOMER NO. 26646

EXPRESS MAIL NO. EL243100298US
ATTORNEY DOCKET NO. 2345/231

METHOD AND SYSTEM FOR INCREASING THE SWITCHING CAPACITY IN ~~TELECOMMUNICATION~~TELECOMMUNICATIONS NETWORKS BY ~~TRANSMISSION~~TRANSMISSIONS OR ACTIVATION OF SOFTWARE

FIELD OF INVENTION

The present invention relates to a system and method for operating and/or organizing at least one ~~telecommunication~~telecommunications network, in which software for implementing a service and/or for organizing and/or implementing the switching of ~~telecommunication~~telecommunications connections is running in a central server of the at least one ~~telecommunication network. Furthermore, the present invention relates to a system for implementing such a method.~~telecommunications network.

BACKGROUND

~~Methods of the aforementioned type are widely known, in particular in~~In view of today's digitalization of the ~~telecommunication~~telecommunications technology, so that - referring to a telephone network by way of example - call switching between two call parties is usually implemented digitally and on the basis of software. Such software is often not only able to establish a connection between two communication parties, but possibly provide other services as well, such as automatic announcements and the receiving of messages, for instance in the case of network-internal answering machines.

With ~~the known~~available methods, corresponding software for organizing and/or implementing switching operations or

services, for example, is running in an individual switching center of a ~~telecommunication~~telecommunications network, it being possible for a ~~telecommunication~~telecommunications network of a network provider to have a plurality of switching centers which cover assigned regional territories, for example.

Furthermore, it is known that switching bottlenecks may occur if a switching center that is part of the own network, for instance, has insufficient switching capacity; that - once again with reference to the telephone network - a dialed connection cannot be established or a desired service not offered since the particular switching center has exhausted its capacity.

Insufficient switching capacity may arise under a variety of circumstances. On New Year's Eve, for instance, it may happen that millions of people attempt to reach their friends and relatives at the stroke of midnight to convey best wishes for the new year. Due to this increased simultaneous ~~telecommunication~~telecommunications demand the dialed call party or a service can frequently not be reached for lack of sufficient switching capacity, and only a busy signal or a some corresponding announcement will be heard.

Increased ~~telecommunication~~telecommunications demand may also come about in other conceivable situations, such as in general around holidays, with media events that call for participation via the phone, or else also in dangerous situations such as in emergencies when a large number of people tries to reach emergency assistance providers or relatives at the same time or when a large group of people is to be notified, for instance in the case of major fires or accidents.

SUMMARY OF INVENTION

~~It is the objective~~Embodiments of the present invention ~~to~~ provide a method and a system by which an overall sufficient switching capacity is able to be ensured even in situations of increased ~~telecommunication~~telecommunications activity.

~~According to~~Embodiments of the present invention~~, this objective is achieved in~~ provide that, in the event of insufficient switching capacity of a network-owned switching center, software is at least intermittently transmitted to at least one additional server of at least one additional switching center, in particular a selectable ~~telecommunication~~telecommunications network - of an otherwise competing network provider, for instance -, and/or software that is already available in such a switching center is activated, in particular in order to increase the switching capacity so as to be able to transmit messages in a selective and large-scale manner.

Using the mentioned method, it can therefore be ensured that in the event of insufficient switching capacity, a copy of the software of the switching center having insufficient capacity or else also any other software for implementing the organization and/or the switching of ~~telecommunication~~telecommunications connections or other services is transmitted to other switching centers, which are basically available both in the ~~telecommunication~~telecommunications network of the affected network provider and in ~~telecommunication~~telecommunications networks of different network providers.

It is likewise possible for such software to be already installed in other switching centers, in particular those of other network providers, which must merely be activated in order to obtain the switching capacities of this switching center.

Notwithstanding the fact that all switching centers in ~~telecommunication~~telecommunications networks are basically equipped with corresponding software for organizing and implementing connections, the method according to the present invention is used specifically in the transmission/activation of special software that, for instance, assumes expanded tasks or services that go beyond the usual connection tasks.

For instance, this may be software that ensures in exceptional situations, for example in emergencies where dangerous situations arise or also in the defense of a country, that a large number of people is reached by a particular message in a minimum of time.

This may be software, for example, which in the case of a fire automatically informs the population of the surrounding area via a ~~telecommunication~~telecommunications network such as the telephone network, by e-mail, via the Internet, the mobile radio network, or also via radio or radio broadcasts, to the effect that, for instance, windows are to be closed or other instructions followed. With the aid of such software, it is also possible to answer incoming calls from concerned citizens and to transfer these calls at a later time. A method for implementing such services with the aid of software ~~is~~may be described, for example, in ~~the previously filed~~German Patent Reference DE 102 04 ~~300 by the same applicant.~~300.

It may also involve an application case where generally any type of large-scale notification is to be implemented with the aid of software. In a defense situation, for example, at the request of government departments, it is possible with the aid of such software for organizing and implementing switching operations of ~~telecommunication~~telecommunications connections to alert and mobilize all soldiers and reserves via a specific message in a minimum of time.

According to the method of the present invention, it may be provided that, after transmission and/or activation, such software will run simultaneously on a plurality of servers of switching centers of a ~~telecommunication~~telecommunications network or different ~~telecommunication~~telecommunications networks, for instance, of different network providers, or that software runs only on one server of a selected ~~telecommunication~~telecommunications network having sufficient switching capacity. In a corresponding manner, if insufficient switching capacity of an affected switching center is determined, this software or some other software may be transmitted to other switching centers by the software itself or also, for instance, upon instructions initiated from the outside, or software already available in such a switching center for such an eventuality may be activated, so that an overall sufficient switching capacity for implementing a large-scale alarm, for instance, is achieved.

In ~~a preferred embodiment~~embodiments of the present invention, it may be provided that prior to the transmission/activation of software to/in one or a plurality of other switching centers or to/in one or a plurality of other ~~telecommunication~~telecommunications networks, the activity prevailing or the switching capacities available in this ~~telecommunication~~telecommunications network is/are queried. In this way it may be ensured that software will be transmitted to or activated in only such switching centers or such ~~telecommunication~~telecommunications networks that are also able to increase the switching capacity significantly.

The selection of an additional switching center or an additional ~~telecommunication~~telecommunications network may be made while taking various aspects into account. For example, the selection may be made on the basis of the available switching capacity and/or according to a quota/priority key,

so that the increase in the switching capacity by adding additional capacities of other network providers, for instance, does not cause any unfairness or disadvantages for these network providers or that such effects are at least controlled.

Since it may happen that the software that was originally intended for the organization and implementation of switching operations of a switching center and which includes the services implemented therein, such as the large-scale notification, is unable to run in the switching centers of other network providers in the specific version of this switching center in view of the operating system, for example, different versions may be stored by a software operating a specific service, such as the one mentioned above, so that a correspondingly selected and adapted software version is able to be transmitted to another switching center in these cases, for instance a switching center of another selected ~~telecommunication~~telecommunications network, it then being ensured that this software with its implemented functions is able to run in this switching center or its server. This ~~problem will~~may not occur if software that merely needs to be activated is already available in other switching centers, since this software is adapted to the particular switching center.

To simplify and automate such transmissions or activations, ~~it may be provided in a preferred embodiment, for instance,~~embodiments of the present invention may provide that in the event of insufficient switching capacity, this switching center or its server or some other center having proper authorization~~,~~ may transmit one or a plurality of software packages to one or a plurality of ~~telecommunication~~telecommunications networks, such

transmission taking place simultaneously, ~~in particular~~for example.

For a transmission of software, it may be provided in embodiments that different versions of a particular software are available in such a software package, so that a respective matching version is automatically selected from the software package and installed upon transmission to a particular switching center. If only an activation is to occur, it will be sufficient to transmit together with the software package at least one activating trigger software in order to activate the software available in the switching centers by a trigger command. Such trigger software may be the same for all switching centers or it may be selected in a center-specific manner.

In this context, it may ~~preferably~~ be provided that a software package of the two aforementioned alternatives represents a program or macro that transmits itself over and over, so that it propagates across one or a plurality of ~~telecommunication~~telecommunications systems quasi automatically, like an avalanche. To this end, such a software package may include a list of all switching centers to be triggered, with the aid of their specific network identification codes, for instance, so that a selective transmission of the software packages may be implemented to the addresses of these switching centers where the transmission or activation takes place.

Such a software package may also carry additional data, such as messages that are to be sent with such an alert or large-scale notification, the target addresses, or also only the indication of a region for which target addresses to which messages must be sent are still to be determined.

~~It is also possible to~~In embodiments of the present invention, a plurality of software packages may transmit to the ~~telecommunication~~telecommunications networks ~~a~~. The plurality of software packages, whose number corresponds to the number of switching centers to be reached, for instance~~,~~, upon arrival at a switching center, a software package automatically installs therein an executable software version, or activates the software available therein, marking this switching center as covered by the software following the installation/activation, so that additional software packages possibly arriving at this occupied switching center are automatically refused and diverted, until all software packages transmitted to one or a plurality of ~~telecommunication~~telecommunications networks have found and occupied a free switching center.

If it is determined, for ~~instance~~example, that the switching capacity of a switching center is insufficient and that capacities of ten additional switching centers are required, it would be sufficient according to the ~~mentioned~~above-described embodiment(s) to transmit ten software packages to one or a plurality of ~~telecommunication~~telecommunications networks, these automatically occupying ten free available switching centers until all software packages have found a switching center.

~~As already mentioned earlier~~In embodiments of the present invention, it may be provided that such software carries out an automatic notification of at least one group of people, ~~in particular~~for example, so as to put out an alert in dangerous situations, via a fixed network, a mobile telephone, the Internet, via e-mail, web radio or other services, for ~~instance~~example.

~~Especially in~~In emergency or other critical cases, for ~~instance~~example, when raising an alarm in dangerous situations, or in the call-up of soldiers via government departments, it may be provided that during normal operation, i.e., prior to a required transmission, software intended for this purpose is stored only in a server of a central location, such as a certified trust center, so that security aspects possibly associated with the software will not be jeopardized under any circumstances. Only in ~~the~~certain exceptional ~~situation~~situations, e.g., where a switching capacity made available by such a trust center~~, for example,~~ is insufficient in the event of a required large-scale alert, may it be provided that such software leave the central location such as the trust center or is activated in other switching centers, for ~~instance~~example, by the aforementioned types of circulation, to then also run, at least intermittently, also in other switching centers in order to manage the emergency situation.

~~Such~~In embodiments of the present invention, such a central location may also ensure that software that ~~is possibly~~may be available in other switching centers and must merely be activated, will be serviced and maintained, i.e., is always available in the latest version.

Furthermore, if software of the mentioned type occupies other switching centers only intermittently or is activated intermittently, it may additionally be provided that software which has occupied a switching center automatically de-installs or deactivates itself again after a specific period of time and returns the switching capacities to the switching center. It may likewise be provided that the release/deactivation of occupied switching centers is initiated from the outside, for ~~instance~~example, once again by transmission of one or a plurality of software package(s),

which coordinate(s) and implement(s) the de-installation/deactivation of the previously transmitted software.

According to embodiments of the present invention, ~~especially~~for example, with software for implementing the switching to at least one particular group of persons, it may be provided that such software accesses a portability database having network-spanning network identification codes of these persons to be switched or notified, or otherwise also that the software accesses the individual network-internal databases of some other selected ~~telecommunication~~telecommunications network provider, for ~~instance~~example.

~~If~~In embodiments of the present invention, if the software itself does not have an internal database, this ensures that it always obtains sufficient information about the network identification codes of persons or network connections to be reached, by accessing globally available databases or the databases of the particular network provider.

For example, in a dangerous situation it may be necessary to reach all people in a particular area of town. To this end, the software may access the mentioned databases in order to ascertain which persons are registered in this region, and by which network identification code (mobile number, fixed network, e-mail, etc.). The network identification codes may be loaded automatically, and automatically generated messages or predefined information, for ~~instance~~example, may be transmitted to these network identification codes.

~~The method according to~~Embodiment methods of the present invention~~, in particular,~~ may be implemented using a system that includes at least one ~~telecommunication~~telecommunications network having a server on which software for implementing and/or organizing switching operations or services is running,

the system ensuring that, in the event of insufficient switching capacity of a network of the own switching center, for ~~instance~~example, this software or some other software is transmittable, at least intermittently, to at least one additional server of at least one additional selectable ~~telecommunication~~telecommunications network, possibly also of the same network, in order to increase the capacity of the switching operations.

BRIEF DESCRIPTION OF THE DRAWINGS

~~An exemplary~~Fig. 1 shows an embodiment of the present invention ~~is schematically shown in the following figure~~.

DETAILED DESCRIPTION

Figure 1 shows a first ~~telecommunication~~telecommunications network 1, which includes a multitude of switching centers 2 having a server and including software for implementing and organizing switching operations. These switching centers may be regionally assigned, for example. It may be provided here, for example, that ~~telecommunication~~telecommunications network 1 be completely organized via a certified center such as a center that is under the control of the government of a country. This center may be set up to notify affected population groups in case of an emergency.

If such a situation then occurs in which the regional group of people to be notified, for example, is so large that the switching capacity of the switching center usually provided for this purpose is no longer sufficient, the software of the figure may correspondingly be transmitted to other ~~telecommunication~~telecommunications networks 3 and 4, or software already there may be activated, the selected ~~telecommunication~~telecommunications networks or the switching centers available therein having a higher switching capacity,

especially for this region. This ensures that sufficient switching capacity will always be achieved in such a situation, so that the required switching operations are able to be implemented within a minimum of time so as to transmit notifications, for instance.

~~What Is Claimed Is~~WHAT IS CLAIMED IS:

~~Abstract~~ABSTRACT

~~The invention relates to a~~A method and system for running and/or ~~organising~~organizing at least one ~~telecommunication~~telecommunications network~~, wherein a~~ is provided. A software for ~~organising~~organizing and/or carrying out the switching of ~~telecommunication~~telecommunications connections and/or services is run down by a central server of ~~said telecommunication~~the telecommunications network. When the switching capacity of the switchboards ~~(1)~~ is not sufficient, the software ~~is~~may be transmitted at least temporarily to at least another server of another selectable ~~telecommunication~~telecommunications network ~~(3, 4)~~ and/or is activated in said server at least temporarily~~, in particular~~. This may be effected in order to increase the transmission capacity. ~~A system for carrying out the inventive method is also disclosed.~~